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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,130	10/20/2003	Erik J. Shahoian	IMM151	3894

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PATENT DEPARTMENT (51851)
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EXAMINER	
HOLTON, STEVEN E	

ART UNIT	PAPER NUMBER
2629	

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05/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,130	SHAHOIAN ET AL.	
	Examiner	Art Unit	
	Steven E. Holton	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 2/27/2007. Claims 1-19 are currently pending in the application. An action follows below:

Response to Arguments

2. Applicant's arguments filed 2/27/2007 have been fully considered but they are not persuasive. Shahoian et al. (USPgPub: 2002/0033795) discloses a touchpad movable in an X and Y directions and capable of applying a force in a combination of X and Y directions at the same time. A rotational force at any point is a combination of X and Y forces and is relative to a defined point or axis of rotation. Using the basic touchpad described by Shahoian a user would be free to move a finger to define a circular or similarly arced path along the surface of the touchpad. The force sensations generated in response to the path could be provided as a sum of X and Y directions that could be opposed to the direction of movement, which would be rotation in the opposite direction of the circular movement. Therefore, even if Shahoian is not specifically provided with a pivot point and similar for rotational movement, forces provided to the touchpad as a combination of X and Y forces could be perceived by a user as rotational forces. The teachings of Rosenberg et al. (USPN: 6128006) are provided to show that force feedback to rotating bodies is known and understood in the art. It would be obvious to one skilled in the art that a touchpad as taught by Shahoian that provides haptic feedback could be modified to move around a pivot point or axis of rotation and

the rotational feedback techniques of Rosenberg could then be applied to the rotating touchpad. Altering the range of motion of the touchpad or how altering the forces applied to the touchpad could be chosen by one skilled in the art based on intended use of the touchpad

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shahoian et al. (USPgPub: 2002/0033795), hereinafter Shahoian in view of Rosenberg et al. (USPN: 6128006), hereinafter Rosenberg.

Regarding claims 1, 14, and 17 which are a device, associated method, and computer program associated with the method, Shahoian discloses a touch-sensitive input device (Fig. 1, element 16) configured to move in X and Y directions. Shahoian further discloses an actuator (Fig. 4, element 88) to provide haptic feedback to the touch-sensitive input device. Movement of a finger or instrument on the touchpad input device results in the creation of a signal to the actuators to provide haptic feedback to the touchpad device. However, Shahoian does not expressly disclose the actuator is disposed to produce a rotational force on the touch-sensitive input device.

Rosenberg discloses a wheel input device with rotational haptic feedback. Although, the mouse wheel is not a touch-sensitive device in the manner of a touchpad or similar, the haptic feedback is provided in response to a rotation of the mouse wheel, not a touch of the mouse wheel.

At the time of invention it would have been obvious to one skilled in the art to modify the teachings of Shahoian with the teachings of Rosenberg to produce a touchpad with rotational haptic feedback. The teachings of both references utilize haptic feedback as an opposing force to movement of an input device. A user of the touchpad described by Shahoian could move a finger in a circular path on the touchpad and at the same time programming could produce a feedback force made of a sum of X and Y components that could simulate a feedback force in a direction associated with the direction of rotational movement. The teachings of Rosenberg are used to show that haptic feedback on a rotating body is well-known in the art. It would have been obvious to one skilled in the art that a touchpad described by Shahoian could be configured to move in a rotational manner through modification of the connection between the actuator and the touchpad. The teachings of Rosenberg provide types of rotational feedback that could be provided to any input device able to be in a rotating manner. The motivation for combining to the two references would be to alter a touchpad with haptic feedback as described by Shahoian to provide a different direction of haptic feedback to the touch-sensitive input device based on the expected inputs made to the input device.

Regarding claim 2, Shahoian discloses the input device as a touch-sensitive input device (Fig. 1, element 16).

Regarding claim 3, the shape of the touchpad, either as rectangular, circular, or some arbitrary shape would be a matter of design choice for one skilled in the art.

Regarding claims 4, 15 and 18, Rosenberg discloses generating rotational force within a limited range of motion (col. 21, lines 33-37). The Examiner notes that the hard stop force would produce a limited range of motion for the rotational force.

Regarding claims 5 and 6, Shahoian discloses using an actuator with a magnetic core and further names the actuator type as an "E-core" actuator (Figs. 15a and 15b; paragraph 159).

Regarding claim 7, Rosenberg discloses the use of a motor with belt drive to provide rotational haptic feedback (Fig. 7, elements 112 and 138 are actuator and belt; col. 15, line 64 – col. 16, line 20).

Regarding claim 8, Shahoian discloses providing stops to limit the movement of the input device (Fig. 16a, element 404; paragraph 169).

Regarding claim 9, Shahoain discloses an actuator using an eccentric rotation mass to provide haptic feedback (paragraph 92, lines 4-6). The Examiner notes that if the actuator described in claim 9 is providing "a rotational force on the touch-sensitive input device" as recited in claim 1, then the teachings of Shahoain would be read on the first claim directly as the actuator to provide a rotational force are used to provide a vibration as discussed in the touch input system of Shahoain and this vibration in the claims is regarded as a rotational force on the touchpad.

Regarding claim 10, Regarding claim 10, Shahoain discloses providing a flexure driven actuator with motor (paragraph 91).

Regarding claim 11, the Examiner states that the use of a flexure of brass would be a design choice for one skilled in the art. The flexure would be made of a suitable material to provide the necessary motion, strength, resiliency, or other properties needed to operate the device. The type of material chosen would be a design choice option.

Regarding claim 12, Shahoain discloses having the actuator is grounded to the housing (Fig. 9, element 278, paragraph 123).

Regarding claim 13, Shahoain discloses a processor to receive output signals and generate signals to produce the feedback forces (Fig. 4, elements 110 and 116). Rosenberg also discloses a processor to receive outputs and produce actuator inputs (col. 8, lines 15-27).

Regarding claims 16 and 19, Rosenberg discloses generating pop sensation to the touch-sensitive input device (col. 18, lines 60 – 64).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
May 11, 2007